

INTERNATIONAL SEARCH REPORT

International Application No
PC1/US2004/018594

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C22B9/05 C22B21/06 B22D1/00 C21C7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C22B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)
EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 010, no. 219 (C-363), 31 July 1986 (1986-07-31) & JP 61 056257 A (JAPAN METALS & CHEM CO LTD), 20 March 1986 (1986-03-20) abstract	1,13
Y		5,25
A	GB 2 077 890 A (MORGAN REFRACTORIES LTD) 23 December 1981 (1981-12-23) abstract; figure 1	1,13
A	US 3 881 709 A (STEEN WILLIAM JOHN) 6 May 1975 (1975-05-06) claim 1; figures 1,2	1-3
Y	US 3 743 500 A (FOULARD J ET AL) 3 July 1973 (1973-07-03) figure 1	25
	-/-	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *8* document member of the same patent family

Date of the actual completion of the international search

11 January 2005

Date of mailing of the international search report

18/01/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-3016

Authorized officer

Bombeke, M

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/018594

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 733 500 A (MESEHA GEORGE M ET AL) 31 March 1998 (1998-03-31) abstract; claim 4; figure 1	4, 13, 14, 16, 25, 26
Y	US 4 735 400 A (MIYAMAOTO KUNIAKI ET AL) 5 April 1988 (1988-04-05) abstract; figures 1-5	5

INTERNATIONAL SEARCH REPORT

International Application No
PLI/US2004/018594

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 61056257	A	20-03-1986	NONE	
GB 2077890	A	23-12-1981	NONE	
US 3881709	A	06-05-1975	GB 1425034 A	18-02-1976
			DE 2333029 A1	06-12-1973
			FR 2176007 A1	26-10-1973
			IT 984271 B	20-11-1974
			NO 133039 B	17-11-1975
US 3743500	A	03-07-1973	AT 287324 B	25-01-1971
			BE 803757 A7	18-02-1974
			CA 944147 A1	26-03-1974
			CH 494821 A	15-08-1970
			DE 1900191 B1	04-12-1969
			ES 362275 A1	01-11-1970
			ES 380652 A1	01-11-1972
			FR 1582780 A	10-10-1969
			GB 1230553 A	05-05-1971
			JP 48041404 B	06-12-1973
			NL 6902481 A ,B	19-08-1970
			NO 128875 B	21-01-1974
			OA 2967 A	15-12-1970
			SU 455548 A3	30-12-1974
			SU 555860 A3	25-04-1977
US 5733500	A	31-03-1998	US 5891215 A	06-04-1999
US 4735400	A	05-04-1988	JP 62227027 A	06-10-1987
			JP 1507054 C	13-07-1989
			JP 62227028 A	06-10-1987
			JP 63060091 B	22-11-1988
			JP 2047436 Y2	13-12-1990
			JP 63007793 U	19-01-1988
			JP 63027458 U	23-02-1988
			JP 63044450 Y2	18-11-1988
			JP 1507057 C	13-07-1989
			JP 63011613 A	19-01-1988
			JP 63060092 B	22-11-1988
			JP 1029233 Y2	06-09-1989
			JP 63078899 U	25-05-1988
			CA 1285762 C	09-07-1991
			DE 3709905 A1	01-10-1987
			DE 3744694 C2	23-11-1989
			FR 2596417 A1	02-10-1987
			FR 2601693 A1	22-01-1988
			FR 2601694 A1	22-01-1988
			FR 2601695 A1	22-01-1988
			GB 2188404 A ,B	30-09-1987
			GB 2219381 A ,B	06-12-1989
			GB 2219382 A ,B	06-12-1989
			GB 2228073 A ,B	15-08-1990
			IT 1205991 B	05-04-1989
			KR 9101487 B1	09-03-1991